

## ABSTRACT

The present invention is directed to a process for preparing a solid composite having colloidal nanocrystals dispersed within a sol-gel matrix, the process including admixing colloidal nanocrystals with an amphiphilic polymer including hydrophilic groups  
5 selected from the group consisting of -COOH, -OH, -SO<sub>3</sub>H, -NH<sub>2</sub>, and -PO<sub>3</sub>H<sub>2</sub> within a solvent to form an alcohol-soluble colloidal nanocrystal-polymer complex, admixing the alcohol-soluble colloidal nanocrystal-polymer complex and a sol-gel precursor material, and, forming the solid composite from the admixture. The present invention is also directed to the resultant solid composites and to the alcohol-soluble colloidal nanocrystal-  
10 polymer complexes.